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DRYLAND AGRICULTURE WATER QUALITY MANAGEMENT PLAN

SECTION 208, P.L.95-217
FINAL DRAFT

September 1979

*State of
Washington*
Dixy Lee Ray
Governor

D.O.E. 79-5d-(1)

*Department
of Ecology*
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Director

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WATER QUALITY MANAGEMENT PLAN
Section 208, P.L. 95-217

September 1979
D.O.E. 79-5d-(1)

Department of Ecology
Office of Water Programs
Water Quality Planning
Olympia, Washington 98504

and

Washington State
Conservation Commission

Note to the reader: The draft Dryland Agriculture Water Quality Management Plan (June 1979) was reviewed by the Policy Advisory Committee in July 1979. Although grammatical and organizational changes have been made in this final draft, the basic plan remains unchanged.

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DRYLAND AGRICULTURE
WATER QUALITY MANAGEMENT PLAN

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Dryland Agriculture Water Quality Management Plan

INTRODUCTION

Problem Statement

Numerous rivers and streams in Eastern Washington do not meet the State of Washington's 1983 water quality goals. After a review of water quality data during the assessment, DOE staff decided to direct initial 208 planning efforts only toward the control of sediment. While DOE recognized that sediment is not the only water quality parameter of concern in dryland areas, it was believed that its control would provide the greatest improvement in the quality of receiving water. Control of sediment might also provide control of other sediment-related pollutants such as nutrients and pesticides.

Dryland agriculture is the primary land use and source of the pollutant problems. Winter wheat is the major crop; depending on the amount of precipitation, barley, peas, lentils, grasses and legumes are grown to complement wheat in crop rotations.

Soil erosion occurs most seasons. The most severe erosion resulting in sediment leaving farms occurs in areas receiving 15 to 18 inches annual precipitation. Those areas receiving less than 12 inches annual precipitation have the least amount of erosion and sediment loss. The areas receiving 12 to 15 inches and more than 19 inches annual precipitation show losses in between the two extremes.

The degree of soil erosion and amount of sediment leaving the farm varies from year to year and from region to region, depending upon the distribution and volume of precipitation over extended periods of time. Approximately 60 percent of normal moisture each year is received during the period of November through March. Most of the erosion occurs during December through March coincident with high winter precipitation. The main causes are runoff from melting snow and low intensity rain on melting snow or on frozen ground.

Unlike other parts of the country, traditional rainfall energy and intensity concepts do not account for the high soil losses. For example, rapidly melting snow has a greater potential for causing erosion than would be calculated from the energy and intensity data obtained from the precipitation records for that snowfall. Similarly, low intensity rain on a shallow, saturated soil layer overlying a frozen soil has a greater potential for causing erosion than indicated by the combination of rainfall energy and intensity and soil erodibility.^{1/}

Intensive tillage to control weeds is a common practice. This pulverizes the soil and crop residues and contributes to increased surface water runoff.

^{1/} See Appendix VIII for literature cited.

DESCRIPTION OF PLANNING AREA

Introduction

Precipitation divides the Eastern Washington dryland farming region into a summer fallow zone and an annual cropping zone. The summer fallow zone is divided into a "dry" farm area receiving 6 to 12 inches of annual precipitation, and an "intermediate" area where annual precipitation is 12 to 15 inches. Annual cropping begins in areas with annual precipitation above 15 inches. In areas receiving 15 to 18 inches annually, a three-year rotation is prevalent.

Humid winters and dry summers characterize the entire Eastern Washington dryland region. About 60 percent of the annual precipitation occurs in the five months from November to March. Moisture stored in the soil during the winter, strongly influences crop production.

Early in the planning process, those involved recognized that precipitation, topography, and soil characteristics could be used to divide the 208 dryland project region into four smaller planning areas. Physical characteristics, in conjunction with farming practices, determine the BMP which are applicable in the particular planning area. The four planning areas are described in physiographic terms in the ensuing sections.

Six to Twelve Inches of Annual Precipitation

Since annual precipitation is a major limiting factor to producers in the planning area, summer fallow is alternated with grain production.

The general topography consists of low, gently sloping, rounded hilltops which are incised with small ravines and gullies.

Erosion problems occur most frequently from runoff (rain or snowmelt) over frozen soil. This runoff results in deep rills in field draws and sheet or fine rill erosion on the steeper, summer fallowed slopes. Wind erosion can be a problem on inadequately protected summer fallowed fields.

Twelve to Fifteen Inches of Annual Precipitation

Due to inadequate precipitation in this planning area, summer fallow is practiced on at least one-third of the land each year.

The topography is varied within this planning area, and consists of three general types. One topographic type consists of hills with expansive gently rounded tops and steep side slopes. Another type is composed of long side slopes descending from massive ridge tops. The third type is composed of relatively level plateaus which are dissected by either draws or deep canyons or ravines.

Major erosion problems occur on summer fallowed fields lacking adequate crop residue, new plant cover, or other support practices. Rain or rapidly melting snow on frozen soil results in the majority of the soil erosion. Summer cloud bursts in areas with steep slopes, shallow soils, and long slopes also contribute to the soil loss.

Fifteen to Eighteen Inches of Annual Precipitation

Annual precipitation levels are such that summer fallow is practiced on about one-fifth of the land in this planning area.

Once again, the topography consists of three general types. One topographic type consists of rolling, dune-like low hills and ridges with rounded tops. A second type consists of steep hills with rough, broken side slopes. The hills are high with many connecting narrow ridges. The third type has long, rounded hills or ridges which are dissected by gullies or field draws washed to bedrock.

The major erosion problems occur in this planning area when summer fallowed land is left unprotected by adequate straw residue or new plant cover and are exposed to winter storms. In addition, the disappearance of soil clods and residue on seed beds prepared for fall seeding (immediately following pea or grain crops) contributes to soil erosion. Again, such factors as rain or rapidly melting snow on frozen soil, steep topography, shallow soils, long slopes, drifting snow, exposed subsoil, and decreased organic matter are all factors contributing to erosion in this planning area.

Greater than Eighteen Inches of Annual Precipitation

Precipitation is sufficient to usually allow annual cropping in this planning area.

The general topography consists of three types. One topographic type has high hills with rather sharp ridge tops. These hills can be characterized as having gentle south and west slopes and steep north and east slopes. A second type has low hills and connecting ridges found in chains. The third type consists of gently sloping or plateau-like ridge tops with steep side slopes that descend into major canyons and ravines.

The predominant cause of soil loss in this planning area is due to the disappearance of soil clods and crop residue in fields that are fall seeded. This results in little soil protection during winter storms. These factors contribute to excessive runoff and soil loss from the summer fallowed land in this planning area. Again, rain and rapidly melting snow on frozen soil result in the majority of the soil loss. Factors further contributing to erosion consist of exposed subsoil, snow drifts, steep topography, shallow soils, long slopes, and decreased organic matter content.

Soil Erosion and Sediment Rates

Sediment is the most serious water pollutant affecting water quality in dryland farming areas.

The Palouse Cooperative River Basin Study^{2/} found that soil erosion rates vary significantly between different crop rotations within each precipitation zone, between the same cropping system in different precipitation

^{2/} See Appendix VIII for literature cited.

zones, and between different slope groups. The study predicted annual soil loss from crop rotation with no conservation management within precipitation zones and slope groups. No conservation management reflects a field condition with low surface residue, late fall germination, excessive soil pulverization, and no farming across the slope.

Predicted Erosion Rates With No Conservation Management^{2/}

Precipitation	Crop Rotation	Tons per acre Erosion rate by slope groups			
		< 7%	7-25%	25-40%	> 40%
Less than 12"	Wheat-Fallow	2	5	11	32
12" - 15"	Annual Grain	4	9	22	65
	Wheat-Barley-Fallow	4	10	25	75
	Wheat-Fallow	7	14	34	95
15" - 18"	Annual Grain	3	15	36	37
	Wheat-Barley-Peas	3	16	35	48
	Wheat-Barley-Fallow	3	16	44	50
	Wheat-Peas	4	19	45	55
	Wheat-Fallow	4	23	56	68
More than 18"	Wheat-Peas 4 years				
	Alfalfa 4 years	1	3	6	9
	Annual Grain	3	8	16	23
	Wheat-Barley-Peas	4	9	18	26
	Wheat-Peas	6	16	32	45

Minimum tillage or stubble mulching (see county BMP lists in appendix) can reduce erosion rates by about 35 percent. Further reductions in erosion can be achieved with the implementation of additional BMP (i.e., support practices such as field stripcropping, terraces, etc.).^{2/}

Only a part of the eroded soil is delivered into stream channels. Delivery rates of sediment vary from 10 to 45 percent in the Palouse River Basin. The physical characteristics, management, and treatment of a watershed, subbasin, field, or a site within a field help to determine the potential amount of sediment delivered to stream systems. In the Palouse area alone, USDA estimated that 3 million tons of sediment is carried out of the basin in runoff water each year.

A soil loss rate of 17 million tons per year (average of 14 tons per acre) is projected for all cropland areas in the basin. Present average wheat yields of 50 bushels per acre could be an estimated 20 percent higher if erosion in the past years had been controlled.^{2/}

^{2/} Ibid.

Water Quality Analysis^{3/}

Various natural waterways such as the Palouse, Touchet, Tucannon, Spokane, and Walla Walla rivers and Rock, Rebel Flat, Missouri Flat, Alkali Flat, Hangman, Union Flat, and Mill creeks are impacted to varying degrees by dryland agriculture.

The Palouse River has been identified as having turbidity problems due to dryland agriculture, and does not meet the 1983 federal goal for fishable-swimmable waters. The Palouse is a Class "B" water from its mouth to Colfax, indicating an impairment in beneficial uses. In the Palouse watershed, over 90 percent of the basin's erosion results from sheet and rill erosion on cropland. Eutrophication was evident in one study in the South Fork of the Palouse and its tributaries; both point and nonpoint sources were likely sources of nutrients. Phosphorus exceeded the algal bloom thresholds on the South Fork Palouse, Paradise Creek, and Missouri Flat Creek. Another investigation sampled the South Fork three miles upstream of Pullman (the upper watershed is predominantly rural in character at this point) and identified dissolved phosphate levels far exceeding algal bloom thresholds during the high runoff period of February, March, and April.

The Walla Walla River and tributaries do not meet 1983 federal water quality goals, with irrigated agriculture, dryland agriculture, and summer low flows as likely causes. The Walla Walla River is a Class "B" stream from its mouth to the town of Lowden.

The Touchet River (Class "A" from its mouth to the town of Dayton) and tributaries do not meet state water quality standards for turbidity. Dryland agriculture is a likely cause. Summer low flows are also a problem.

Sediment delivery of 1,000 to 2,000 tons/sq. mile from sheet and rill erosion has been calculated for Rock Creek, a tributary to the Palouse River.

Beneficial uses have been impaired on Rebel Flat Creek. Nitrate, ammonia, and total phosphate levels exceeding recommended criteria have been noted. Sediment delivery due to sheet and rill erosion has been estimated at 2,000 to 3,000 tons/sq. mile/year. Streambank erosion is also a problem. Similar impacts on beneficial uses and sediment deliveries have been observed on Missouri Flat Creek. Nutrient levels exceed recommended criteria.

The sediment-nutrient problem is demonstrated by sampling done on Union Flat Creek. Union Flat Creek croplands have been found to deliver 1,000 to 2,000 tons/sq. mile of sediment to streams each year. In addition, nutrient sampling at a point on the stream representing an essentially rural upper drainage with no significant direct influence of urban discharges or livestock waste, revealed a dissolved phosphate concentration more than five times the combined ortho-total phosphate algal bloom

^{3/} See Appendix VIII, references 3 through 10.

threshold limit, and a nitrate plus ammonium level which exceeded recommended criteria by fifteenfold. These nutrient samples were collected during the high runoff periods of February, March, and April.

High turbidity levels have been noted above and below the city of Spokane on the Spokane River. Hangman Creek (a Class "A" stream) is a tributary of the Spokane River, where fishing, recreation, livestock watering, and municipal and industrial water supplies are impaired due to the pollutants from dryland agriculture. Sediment yields of 2,000 to 3,000 tons/sq. mile/year have been identified.

The Tucannon River and tributaries (Class "A" from its mouth to the Umatilla National Forest boundary) likewise do not meet state turbidity standards. Most of the Tucannon River basin's dryland crops are located in the Pataha Creek drainage, a major tributary of the Tucannon.

Many pesticides, organic phosphorus, organic nitrogen, and ammonium are tightly bound to soil particles. BMP that reduce erosion and sediment delivery to streams are likely to result in a reduction of these pollutants. Orthophosphate, which is moderately bound to soil particles, can be controlled by reducing sediment yield or the quantity of surface water runoff. Pollutants such as nitrate, which are very soluble in water, are best controlled by practices which reduce the use of nitrogen fertilizers.

PLANNING PROCESS

Public Participation

The underlying concept behind all planning efforts during the two-year development of the Water Quality Management Plan was a firm commitment to public participation. Almost half of the work plan budget was committed to this effort.

Public participation efforts were directed at three levels: 1) individual farmers, 2) farm organizations and commodity groups, and 3) the general public. Department of Ecology, Conservation Commission (CC), Washington State University Cooperative Extension, Soil Conservation Service, local water quality committee, and conservation district personnel cooperated in the public participation effort and in the preparation of information/ education materials.

Numerous meetings, hearings, workshops, and tours were held throughout the dryland counties during the two-year planning process. Emphasis was placed on meetings with local farmers within each conservation district. Each district formed a water quality committee to develop the 208 proposal and recommend how it should be implemented. Farmer awareness of the problem and their participation in the development of solutions was greatly increased by this effort. More importantly, the farmers developed a commitment to implement the plan and insure its success.

Conclusions and Recommendations

The following list of conclusions has been reached by the CC regarding the 208 planning process:

- There is a genuine concern among dryland farmers over the amount and rate of soil erosion and sediment delivery to streams.
- The 208 planning process has been beneficial. As a result of the public awareness efforts, excellent public participation resulted. The people of Eastern Washington have a much better understanding of nonpoint pollution and related problems. In addition, the 208 planning process surfaced local leadership. Local individuals were willing to serve in leadership roles to help provide a solution to the problem.
- Dryland agriculture producers favor a locally managed and locally operated program using existing agencies and organizations to provide leadership and management skills.
- The success of the Water Quality Management Plan (WQMP) will be based upon the adoption of BMP by producers. Dryland agriculture producers favor efforts to achieve voluntary (nonregulatory) BMP adoption through the timely use of education/ information programs and incentives.

- Water quality management implementation processes described by each designated dryland county contain many similarities, yet each one is area specific. The similarities have been incorporated into this state plan.
- In the event that the management agency (MA) has attempted to assist a producer in correcting water quality problems, and the producer is unwilling to cooperate, the MA will seek DOE assistance. The DOE Director will use Chapter 90.48 RCW and the memorandum dated January 24, 1978 titled "Policy Statement for Implementing Local Programs for the Control of Agricultural Nonpoint Sources of Waste."

The following list of recommendations represents the major policy decisions made by water quality committees and conservation districts in the public participation process (not listed according to priority). Those participating in the planning process deemed these recommendation paramount in meeting water quality goals:

- BMP should be considered by producers as alternatives that can be used to improve water quality and should not be used as regulations.
- Producers should be provided adequate lead time, as well as financial and technical assistance, to enable them to apply BMP to problem sites.
- The conservation districts should be designated as the management agencies responsible for administering the local 208 program.
- Conservation districts should be provided funds to assist them in carrying out their added water quality management responsibilities.
- A voluntary (nonregulatory) program, locally managed, is a top incentive and needs to be retained in the implementation of the WQMP.
- The voluntary program should not be revoked unless it is documented that the program is failing to achieve water quality goals through disregard or neglect by landowners and operators.
- Open space legislation should be retained.
- The maximum cost-share level of Agricultural Conservation Program (ACP) funds should be increased. In addition, the total ACP budget to cover added participation and needs should be increased.
- A process whereby producers adopting BMP can receive income tax credit should be explored with national legislators.

- A process whereby producers adopting BMP can receive bonus Normal Crop Acres (NCA) in the set-aside program should be explored with the U.S. Department of Agriculture-Agricultural Stabilization and Conservation Service (USDA-ASCS).
- Negative incentives, such as conflicts between national farm programs and pollution abatement laws, must be resolved. Agencies must work toward that goal.
- Federal and state research agencies should be provided additional support to develop a wider array of BMP alternatives to solve water quality problems.

Input provided through the public participation process showed that farmers prefer to rely as much as possible on a voluntary program to correct water quality problems. As a result, a detailed outline of an information/ education program has been included in the Water Quality Management Plan. The majority of farmers felt that most people would cooperate voluntarily if they were aware and informed about the water quality program and the reasons for it. However, in some situations a regulatory backup authority has been provided, if needed, to insure success of the program.

Dryland Technical Advisory Committee (DTAC)

The DOE appointed a technical advisory committee (DTAC) of producers and federal, state, and local agency personnel with expertise in dryland agriculture. DTAC provided guidance and recommendations to DOE and the CC and were actively involved with the water quality committees in the following areas:

- Provided technical knowledge and resources to assist in implementing the dryland water quality work plan.
- Reviewed and commented on the feasibility of any actions proposed to be undertaken in the planning process.
- Made direct inputs into implementation of the planning process to the Conservation Commission.
- Reviewed proposed final BMP, regulatory provisions, technical adequacy, and institutional arrangements to assure they met the following three criteria:
 1. Were economically feasible
 2. Were socially acceptable
 3. Improved water quality
- Recommended alternative strategies for implementing the dryland water quality work plan to the 208 Policy Advisory Committee (PAC).

- Maintained liaison with the state PAC and dryland working group to insure program coordination.

Water Quality Committees

Conservation district boards of supervisors either organized water quality committees or functioned as the water quality committee. The water quality committees focused on the problems of their entire area rather than on specific localized problems to insure that as many operators as possible would be involved in the planning process. With input of the operators in their districts, the water quality committee developed, reviewed, and recommended BMP to the Dryland Technical Advisory Committee for inclusion in the State 208 Dryland Agriculture Water Quality Management Plan. The material was submitted to DTAC using the following format:

1. Public participation summary and documentation, together with water quality committee membership.
2. Best Management Practices (BMP)
 - a. Precipitation zones
 - b. Major soil series and associated soil series
 - c. Problems addressed
 - d. Alternative cropping sequences
 - e. Alternative tillage and/or cultural practices
 - f. Alternative end product
 - g. Supporting practices
3. BMP effectiveness

After review by the DTAC, the BMP were presented to the conservation district Board of Supervisors for their acceptance. The acceptance of the BMP is recorded in the minutes of the conservation district meetings and in the county water quality BMP plans.

WATER QUALITY MANAGEMENT PLAN

Introduction:

The Water Quality Management Plan is a voluntary program with extensive information/education activities, technical assistance, and descriptions of the incentives needed to insure the implementation of BMP to control agricultural nonpoint source pollutants. The majority of farmers feel that most people would cooperate voluntarily if they are aware of and informed about the water quality program and the reasons for it. However, in some situations a regulatory backup has been provided, if needed, to assure success of the program. Yearly evaluations will monitor the implementation of the BMP and the effectiveness of the BMP in improving water quality. BMP will be modified and other approaches developed if the program does not solve the agricultural nonpoint source water quality problem.

The Water Quality Management Plan includes the following components:

I. Management Agencies

The conservation districts have accepted the responsibilities of a management agency in implementing the Water Quality Management Plan (WQMP) in the dryland counties. A management agency acceptance statement for 12 conservation districts is on file in the CC office. Management Agency Implementation Statements (MAIS) or their equivalent will be signed by each conservation district. The contents of a MAIS include: definition of agency responsibilities, schedule for major actions, reference to legal authorities, and a description of financial and institutional capabilities.

Management agencies designations must possess the following:

- A. Total responsibility for program implementation;
- B. Assigned responsibilities critical to plan implementation;
- C. Legal authority, including existing statutory and regulatory authority, to carry out the portions of the plan assigned to it;
- D. Legal, financial, managerial, and institutional capabilities to administer the plan;
- E. A completed Management Agency Implementation Statement (MAIS) or its equivalent; and,
- F. Demonstrated willingness to proceed and implement the plan.

For those counties with more than one conservation district, one district will accept the lead management responsibilities and will negotiate a contract with the CC to perform the management agency functions. The lead district in the county will subcontract with the other districts to carry out those responsibilities of the WQMP pertaining to the individual districts. Following are the specific management agency designations:

Adams County - Adams Conservation District;
Asotin County - Asotin County Conservation District;
Columbia County - Columbia Conservation District;
Douglas County - South Douglas Conservation District;
Garfield County - Pomeroy Conservation District;
Grant County (dryland) - Ephrata Conservation District;
Klickitat County - Central Klickitat Conservation District;
Lincoln County - Lincoln County Conservation District;
Spokane County - Spokane County Conservation District;
Stevens County - Stevens County Conservation District;
Walla Walla County - Walla Walla County Conservation District;
and
Whitman County - Whitman Conservation District.

The implementation plan describes activities that management agencies can use as a guide in carrying out their management responsibilities. Each dryland county has described its necessary activities. Activities displayed in the county plans are incorporated into this state WQMP and will provide the designated districts with guidelines to use in developing an annual 208 plan of work consistent with the level of resources available to them each year.

II. Education/Information Program

A comprehensive education/information program has been identified as the key to the success of a voluntary (nonregulatory) program. The education/ information program will consist of the following:

A. County Meetings, Community and/or Neighborhood Meetings, and Mini-Sessions.

These sessions have a high priority as methods to reach producers. They were initiated in the fall and winter of 1978-1979 and will continue annually. The designated management agency has the lead responsibility in this activity. The management agency will be assisted by SCS and Cooperative Extension personnel, as well as water quality committee members.

B. Tours

The conservation tour is a valuable teaching tool that supplements other educational efforts. Designated counties have identified one or more tours each year. Tours will be used to acquaint conservation district supervisors with BMP implementation progress. They will be scheduled to demonstrate practices for the public. Some conservation tours will be linked to other production practice tours to offer opportunities to broaden technical knowledge and demonstrate the applicability of BMP.

County tours have been scheduled to begin in 1979 and will continue annually. The tours are preferred in late winter or early spring and fall. The management agency, water quality

committee, SCS, and Cooperative Extension have accepted the responsibility to plan, organize, and conduct educational tours.

C. Newsletters

Many conservation districts plan to publish up to five newsletters annually. Newsletters are a useful informational technique to get the BMP message to owners and operators. Management agencies will have the lead responsibility to prepare newsletters, but they will be assisted by SCS, Cooperative Extension, and other cooperating agencies.

D. Publicity Program

All counties have identified the local newspapers and/or radio stations for release of timely conservation, BMP, and water quality information. Those counties having TV facilities available plan to also use this media. Management agencies and cooperating agencies will assume the responsibility to insure the media is informed of the problems and the progress made to solve the problems.

E. Popularize BMP

The Cooperative Extension has developed a popularized version of the county BMP plans. This document is an attractive and effective way to display and educate operators about BMP which may assist them to solve their water quality problem.

F. Special Educational Programs

Counties recognize the need for special programs. These may include specific programs for nonproducer audiences, special landowner/tenant materials to assist a tenant in seeking BMP adoption by landowners, and production cost and return studies to demonstrate economic feasibility of implementing the BMP. The management agency has the lead responsibility for this activity. All cooperating agencies will assist.

G. Contacts

Personal contacts are the most effective communication tool. Management agencies and cooperating agency personnel will contact producers with identified problem sites on a one-to-one basis.

H. Training Activities

Conservation district supervisors have been placed in the role of providing leadership and management skills for the county WQMP. Additional conservation district employees will be hired to facilitate this process. The CC, in cooperation with assisting agencies, will develop and conduct appropriate training programs. Training programs will be designed to:

1. Acquaint conservation district supervisors with their role and the responsibilities of operating a management agency.
2. Help conservation district supervisors to become skilled in personnel and fiscal management.
3. Train district employees in their roles.
4. Train CC field representatives to become effective mid-management personnel.

III. Best Management Practices

The agricultural community recommended using the BMP as a guide to operators to control their agricultural pollution problems. Because of the variability in topography, precipitation, and soils, no single BMP is applicable to all situations. BMP must be tailored to the needs of the particular field or site and the physical conditions that govern its application. Therefore, county water quality plans contain a list of practices which, depending upon the circumstances of the operation, have the potential of correcting agricultural pollutant problems. The practices are not considered "best management practices" until they are incorporated into a farm water quality management plan. Appendix III describes the BMP developed by the water quality committees. The BMP developed by the 12 water quality committees can be summarized in the following manner.

Commonality Among Low Rainfall Areas

In the 6- to 12-inch annual precipitation area, winter grain and summer fallow is identified as the principle cropping sequence. A three-year rotation cropping system may be possible on a limited basis when annual precipitation reaches 12 or more inches.

Commonality Among Areas with 12 to 15 Inches of Annual Precipitation

Grain-summer fallow is the principal cropping sequence in this area. Three- and four-year rotations are also identified in the BMP package. In addition, annual cropping is identified as an option during seasons when moisture will permit or on moisture favorable sites.

Commonality Among Areas with 15 to 18 Inches of Annual Precipitation

This area presents some of the most challenging problems. Identified cropping sequences are annual cropping, four-year rotation, and three-year rotation. Grain-summer fallow with support practices are identified as an alternative.

Commonality Among Areas with More than 18 Inches of Annual Precipitation

Annual cropping is the major system in this area. Alternate crops to complement wheat production are listed. Grass seed production is also an option. Summer fallow is shown in the BMP package for use in a very limited basis.

Acceptable Tillage Practices

Several county plans describe specific tillage practices in their BMP lists, while other counties have chosen to address alternative end products. It was decided that a description of a level of residue to be left on a field following summer fallow was more desirable than specifying a list of tillage operations. In county plans identifying summer fallow as an alternative cropping practice, the plans usually specify that the fallow will be stubble mulch with 20 percent of the original amount of residue produced. This residue should remain on or near the surface of the soil during or after seeding time in the fall of the year. Early seeding is usually a part of this practice.

BMP from all counties support a reduction in tillage operations. The annual cropping option is coupled with rough tillage. Rough tillage in the fall of the year in conjunction with annual cropping is one of the most effective erosion control practices.

BMP Support Practices

The greatest commonality among county BMP packages is the support practices. Although each county water quality committee has identified essentially the same support practices, they must be tailored to the specific conditions of each planning area. Thus, although the practice may have the same name, the technical specifications may differ. Specifications for this local adaption of support practices are available in each SCS office throughout the dryland agricultural region.

BMP support practices consist of terraces, diversions, sediment ponds or basins, drop structures, strip cropping, divided slopes, permanent seeding, and sod waterways. Alternative cropping sequences, alternative tillage practices, and alternative end products are listed in the BMP packages.

Due to the variability of topography, climate, and soils, no single BMP will be applicable to all situations. BMP must be tailored to the needs of the particular field or site and the physical conditions that will govern its application.

Counties consider the BMP as first generation BMP. If BMP evaluations show that water quality goals are not being reached, BMP will be reviewed and revised. Water quality committees will be retained

as subcommittees of conservation districts to review and evaluate BMP. Public participation will be used in the revision process. The review process within a county will follow a pattern similar to that used to develop the BMP.

DTAC will review BMP changes for technical adequacy and approval. DTAC will also evaluate future technical needs for the program. The CC will request DTAC to review any updating of the BMP recommended by conservation districts. During the first year of operation, conservation districts will include the BMP review and updating process in the annual 208 plan of work.

IV. BMP Implementation

A. Problem Areas Identified

A step-by-step process has been developed to focus limited resources on the most critical areas. Problem areas have been identified and prioritized within each county and are included in each county plan. Maps delineating the priority areas by county are included in Appendix VI. The material used to identify the problem areas is located in the appropriate county conservation district office.

B. Problem Sites Identified

Problem sites will be identified in priority problem area 1 first. As time and resources permit, problem sites will be identified in priority problem areas 2 and 3. Land capability classes IVe and VIe will initially be identified as a potential problem site. Additional investigations will be made to prioritize these problem sites. Some of the factors to be looked at are:

- Land use
- Does the eroded soil reach the stream?
- What care, protection or management is currently used on, above, and below the site?
- Is the site close to a drainage channel; what is the condition of the channel?
- What is the shape, width, and slope of the valley floor?

C. Solutions Developed

Problem sites identified through the problem site identification process or through routine data gathering will be handled in the following step-by-step process:

Problem Site Plan

1. When a problem site is identified, the management agency personnel will contact the producer. They will evaluate the problem, identify alternative BMP,

and develop a site plan. A schedule of application of the BMP will be prepared. The producer will make a commitment to implement the measures included in the site plan.

2. Technical assistance from the management agency and cooperating agencies will be used to assist a producer to develop and implement the site plan.
3. If BMP adoption is contingent upon cost-share funds, the management agency will identify cost-share needs, prioritize practices that require cost-share assistance and refer the producer to a source of cost-share funds.
4. Management agency personnel will monitor the progress of plans developed. For those site plans where progress is not being made, the producer will be contacted by management agency personnel to determine reasons for the lack of progress. The management agency will work with the producer to reschedule implementation of the plan, where needed.
5. If management agency personnel are unable to gain the confidence of the producer, one or more management agency members (conservation district supervisors) will make personal contacts to seek the cooperation of the producer.

Referral to DOE:

6. In those situations where there is no progress and it appears that there is an unwillingness on the part of the producer to implement the plan, the management agency will refer the problem to DOE for further assistance. This action is in accordance with Chapter 90.48 RCW and the memorandum from the director of DOE dated January 24, 1978, titled "Policy Statement for Implementing Local Programs for the Control of Agricultural Nonpoint Sources of Waste."

Complaints:

7. County plans recognize the complaint as one means of identifying problem sites. Any individual may file a complaint with the appropriate conservation district. Complaints will be filed in writing and signed by the individual making such a complaint.
8. Upon receipt of a complaint, the conservation district will make an investigation of the problem site or area. If the complaint is invalid, it will be

dismissed and all parties so notified. Valid complaints will be handled through the process described in C 1-6 above.

Appeals:

9. Differences of opinion will occur between management agencies and producers and between producers and complainants. Most county plans provide for an appeals procedure as a means to resolve such differences. An appeals board will hear the appeals.

V. Incentives

Realistic incentives will facilitate the implementation of the Water Quality Management Plan. Each county has identified the cost-share needs that would make BMP economically feasible.

Possible sources of cost-share funds include:

A. Agriculture Conservation Program (ACP)

The traditional ACP cost-share program administered by the U.S. Department of Agriculture, Agriculture Stabilization and Conservation Service (USDA/ASCS) is identified as the principal source of cost-share funds. Cost-sharing is available for practices that reduce pollution and improve water quality. Significant changes have been made in ACP to address water quality problems. Long-term agreements (5-10 years) and mini-long term agreements (3-5 years) are available to assist the producer.

B. Special Projects

Special projects funded through ACP funds provide cost-share payments for BMP implementation on a basin or subbasin basis. Through the special projects program, additional cost-sharing is available through pooling agreements, long-term agreements, or mini-long-term agreements.

C. Public Law 566

The Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended, authorizes federal technical and financial assistance to local organizations in planning and carrying out project-type actions for soil and water resource development, use, and conservation. Within the limits of program authorities, assistance is provided for significant watershed problems which cannot be solved adequately or in a timely manner with assistance available under other federal programs.

Recent changes in policy have made watershed plans containing only land treatment acceptable. Land treatment practices eligible for accelerated cost-share assistance have been

expanded to include additional long-term practices to reduce erosion, and practices for water conservation, water quality, and fish and wildlife. Plans to accelerate land treatment application must have significant impacts on reducing erosion and improving water quality. Financial assistance for accelerated land treatment can only be used to supplement funds available from other USDA programs, state, and local sources. The rate of cost-share assistance for existing national programs will be used.

D. Rural Clean Water Program

The Clean Water Act of 1977, Public Law 95-217, includes a new federal cost-sharing program designed to aid in the implementation of BMP. Section 35 of the law authorized funds for technical and financial assistance to private landowners and operators in drainage basins of approximately 200,000 acres with critical water quality problems due to agricultural activities. Contracts of 5-10 years will be the basis for cost-sharing with individual farmers. These contracts will be based upon farm water quality plans which will identify best management practices needed to achieve nonpoint pollution control. The RCWP is administered by the SCS with concurrence from the EPA.

E. Additional Incentives Required:

1. USDA and EPA should seek ways to eliminate conflicts between national farm programs and soil conservation programs. This would allow producers to participate in both programs without an economic penalty.
2. There should be tax incentives for implementation of BMP.
3. USDA and EPA should develop a process that provides producers bonus Normal Crop Acres (NCA) for adopting approved BMP.
4. EPA and USDA should work together to expedite chemical clearances necessary for the effective use of BMP.

VI. Research

New technology is necessary to meet the needs of changing conditions. The research needs identified by county water quality committees and conservation districts include:

A. Grain

1. Develop disease resistant, high yielding, winter wheat varieties.
2. Develop high yielding, early maturing spring wheat varieties.

3. Develop improved yielding barley and oat varieties.
- B. Tillage
1. Accelerate research on all phases of "no-till."
 2. Accelerate the design of equipment to handle heavy crop residues and to withstand operation over rough ground.
- C. Chemicals
1. Seek new chemicals to control grass and broadleaf weeds.
 2. Seek new chemicals to control disease, insects, and rodents.

VII. Evaluation

A. Inventory BMP Adoption:

During the first year of plan implementation, the management agency will inventory BMP in place as a means of establishing a baseline. The BMP inventory will begin in the highest priority problem areas. The BMP inventory and problem site identification can be conducted simultaneously. After these efforts have been conducted in the highest priority area, the process will proceed in the next highest priority area. BMP adoption each year thereafter will be recorded and used as a measure of progress against the established baseline. In the preparation of the annual 208 plan of work, the conservation district, with the assistance of the Conservation Commission and 208 staff, will describe a process to record progress in this activity.

B. Evaluate BMP Effectiveness:

Data gathering to document the effectiveness of BMP in meeting water quality goals is a major responsibility of the management agency. In the initial phases of the program the management agency will monitor BMP on a spot-check basis in the highest priority area. An assessment will be made of the water quality data, and trends in water quality improvement will be documented. These outputs will be used as criteria for the county water quality committees to use to update the BMP.

C. Monitor Climatic Conditions:

The management agency in cooperation with the SCS, weather bureau stations, Science and Education Administration-Agricultural Research (SEA-AR), and other assisting agencies will develop a weather monitoring system to describe normal climatic patterns for a county. Normal climatic conditions are needed in order to document the occurrence of an abnormal storm event or climatic pattern which could be responsible for creating conditions adversely impacting the effectiveness of BMP.

VIII. 208 Revision Process

The concept of a continuing planning process requires that plans be revised when they are no longer applicable or when new technology becomes available. Minor changes in operating agreements between agencies can be handled by the agencies renegotiating their memoranda of agreement. Requests for major changes in the WQMP will be forwarded to DOE to evaluate the impact on water quality. Changes affecting the goals and objectives of the plan must go through the public participation and review process.

IX. Annual 208 Work Plan

Conservation district supervisors annually prepare a work plan. Beginning in 1979, a 208 segment will be added. It will describe the goals and schedules in three major program areas: education/information, operations, and evaluation/reporting.

A. Education/Information Program

This is the key to a nonregulatory program. The education/information activities described elsewhere in this plan will be emphasized. The starting point is an understanding of the BMP and the county implementation plan. Assistance of the cooperating agencies will be sought to develop and conduct this program.

B. Operational Program

1. BMP in place will be inventoried as a means to establish a baseline for measuring progress. Following the inventory, conservation districts will describe and initiate a process to provide an annual update of BMP application as a means of measuring progress toward achieving water quality goals.

BMP inventories will begin in priority area 1. As work proceeds and resources become available, the inventory will be extended to priority areas 2 and 3.

2. BMP will be evaluated in the fall and spring to determine whether or not they are improving water quality. This data will be used as the basis for annual BMP updates.
3. Problem site identification will begin in priority area 1. Conservation districts will use the criteria described in Section IV.B. to identify problem sites. The criteria will be modified, as new information becomes available.

As part of this process, conservation districts will plan and conduct special education/informational programs to reach problem site owners or operators. Special educational efforts may include mini-sessions, special tours,

or increased emphasis on one-to-one contacts. The landowners or operators of problem sites will be assisted in the development of a site plan and in the implementation of the plan.

4. A process will be developed to describe and document abnormal temperature and moisture conditions with the cooperation of assisting agencies.
5. Personnel administrative procedures will be developed with district employees to facilitate 208 plan implementation. The Model Implementation Program experience will be used as guidance.

C. Evaluation/Reporting Program

Annually, conservation districts will evaluate their 208 program activities. The evaluations will address such questions as:

- Is the program reaching those producers with identified problem sites?
- Are the BMP effective in improving water quality?
- What worked?
- What did not work?
- Are there modifications needed in the WQMP in order to meet water quality goals?

DOE will meet with the conservation districts and Conservation Commission representatives to provide direction and guidance for the annual evaluation.

A report of the program evaluation will be made during the first quarter of each calendar year to the following agencies: Department of Ecology, Conservation Commission, Cooperative Extension, Soil Conservation Service, and other support agencies. The evaluation will include, but not be limited to, the following:

1. Completion of the WQMP (first year only).
2. Orienting the management and support agencies to their program responsibilities.
3. Priority area(s) worked in.
4. Identification of priority audiences.
5. Outputs completed.
6. Annual goals met.
7. Technical and financial assistance provided.

8. BMP applied to problem sites.
9. Analysis of the success/failure of the voluntary program.
10. Assessment of water quality data and trends in water quality.

PUBLIC PARTICIPATION SUMMARY

Public participation was an integral part of the development of the WQMP. Ideas were sought from a wide variety of interest groups and farmers. It was felt that those who would have to implement the plan must be involved in the development of that plan. Therefore, the conservation districts were the starting point of the 208 planning effort.

An initial meeting was held with each conservation district board of supervisors to explain the 208 program, to point out opportunities for conservation district programs, and to seek conservation district participation in the planning effort. Conservation districts were to form or act as water quality committees. The water quality committee would be used to actively involve the farmers in the development of the 208 plan. The water quality committees were thoroughly briefed on the philosophy of 208 planning and the need to seek public input to the development of nonpoint source pollution abatement plans for dryland agriculture.

BMP Development

Following the formation of water quality committees, the members initiated an awareness program with their organizations. Counties were divided into communities, neighborhoods, or physiographic areas to organize small group meetings and to provide a setting more conducive for discussion. Usually, each water quality committee member would take the responsibility to hold a citizen input meeting in the area he represented. The individual responsible for a meeting handled all of the local arrangements, including publicity.

During the group meetings, the local water quality committee member served as meeting chairman. A dryland agriculture 208 staff member presented an orientation about the 208 program including mandates, requirements, and expectations of agriculture. Following the orientation portion of the meeting, public input was assessed. Meeting participation provided the local input of knowledge and experience concerning erosion control practices. Items discussed included problems, solutions, implementation procedures, and what entity should be the management agency. These types of small group meetings were repeated many times in the designated dryland counties. One county sponsored very small group meetings called "mini-sessions." These were held in about 25 locations in the county.

Drafting of the BMP for a county began after the public involvement phase was completed. Much sorting and organizing of the material was necessary before a BMP package began to emerge. Staff assistance from the 208 dryland specialists and the district conservationists working with water quality committee chairmen was required to develop a BMP package.

BMP Review Process

The review process has been an important part of the program. As initial drafts of BMP were completed, county water quality committees began reviewing them. Rather than schedule a new series of meetings, water quality committee members were asked to seek reaction from the organizations and/or the public in areas they represented.

The Columbia County Conservation District held five hearings seeking approval of BMP. Several other dryland agricultural counties held one public meeting to approve BMP. Two counties scheduled review meetings in the same manner as input meetings to seek approval of BMP. Seven counties used direct mail as a method to communicate with the public and seek approval. Two counties published the complete BMP package in their local newspapers and sought comments and suggestions from the general public. Water quality committees approved the BMP package after evaluating the comments during the review process.

Water Quality Committee Chairman Meetings

As planning for water quality improvement progressed, the need for better communications and understanding became apparent. Consequently, the dryland 208 staff organized and held three water quality committee chairman meetings in Moses Lake, Washington. SCS district conservationists and county Cooperative Extension agents also attended. The meetings were held in June 1977, November 1977, and March 1978. The purpose of the meetings was to discuss mutual problems and exchange information. The first meeting was devoted to discussions concerning public input and BMP development. The second meeting was devoted to further discussions of BMP and the idea of an implementation plan. The third meeting was devoted entirely to the implementation plan.

House Agriculture and Ecology Committees Work Session

During December 1977, the House Agriculture and Ecology committees held a legislative work session and hearing on the dryland 208 program. The dryland 208 staff had the opportunity to present a dryland agriculture progress report to the legislators. Following the work session, a legislative hearing was conducted. Water quality committee representatives, producers, and others from the dryland agricultural counties had the opportunity to present testimony.

Implementation Plan

The goal of the dryland program is to develop an implementable plan for nonpoint pollution abatement. The implementation plan is a description of the methods and techniques that management agencies and producers will use to achieve adoption of BMP packages.

Water quality committee chairmen, district conservationists, and county Cooperative Extension agents received the first orientation of the requirements of an implementation plan during the second informational meeting in Moses Lake in November 1977.

Several counties scheduled neighborhood or community meetings to seek citizen input toward implementation plan development. Water quality committee members were used extensively as resource persons in plan development. The dryland 208 staff, in cooperation with water quality committee chairmen or subcommittees from the water quality committees, prepared the initial draft of the implementation plan. County water quality committees sought review of the implementation plan, and scheduled public meetings or hearings to seek public acceptance of the

plan. Completed plans were submitted by the conservation districts to DTAC for review.

Informal Review of WQMP at the County Level

Following completion of the Second Draft WQMP, conservation districts were asked to provide an opportunity for their members to review and respond to the draft WQMP. Fourteen county and community meetings were sponsored to explain the WQMP and to seek comments on it.

A record of public participation efforts is included in Appendix III.

Supplemental Meetings

To supplement the efforts of the conservation districts and water quality committees, the following meetings and media activities occurred in Eastern Washington:

<u>Organization</u>	<u>Number of Meetings</u>	<u>Scope</u>
Washington State Crop Improvement Association, Pullman	1	Statewide
County Crop Improvement Associations	5	Individual Counties
Dairy Federation, Spokane	1	Spokane, Pend Oreille, and Stevens Counties
Public Information Meetings, Various Groups in Five Counties	15	Eastern Washington
Wheatgrowers Association Production Workshops	3	Wheatgrowing Area of Eastern Washington
Various County Meetings	9	
Agriculture Bureau-Chamber of Commerce, Spokane	1	Spokane
TV--KHQ--30-minute programs	2	Spokane Viewing Area
KREM--5-minute programs	10	Spokane Viewing Area
KWSU--10-minute programs	1	5 PBS Stations in Washington
Radio--State Grange Network --5-minute programs	9	48 Radio Stations in Washington
Service Clubs	3	Whitman County
County Commissioners' District Meetings	4	Central and Eastern Districts

Public Hearings

A series of five public hearings were held to formally obtain public comment and reaction to the draft WQMP prior to submittal to the Governor for certification. The hearings were held in Waterville, Spokane, Pullman, Walla Walla, and Goldendale. One hundred ninety four (194) people attended the hearings. The major concerns expressed in the hearings and the responses given follow:

- Changes are needed to improve the clarity of the plan.

Suggested changes to improve clarity throughout the plan have been considered and included where appropriate.

- Questions were raised about continuation of the water quality committees.

Water quality committees will continue to serve as sub-committees to conservation districts to advise on the need for BMP revision and updating.

- There were many questions on the requirements necessary to make a voluntary program work. Some felt there were too many requirements and details, and others felt there were not enough requirements and details.

EPA requires the following elements in a water quality management plan:

- Involve the public in water quality control planning and report the extent of participation.
- Identify agriculturally related water quality problems and establish priorities by stream reach and geographic areas.
- Select the best management practices (BMP) that prevent or reduce water quality degradation.
- Evaluate available incentives and recommend an overall incentive program, including any additional ones needed to achieve water quality goals.
- Provide a process and procedure for getting the BMP applied where needed, identifying responsibilities for all the implementation steps.
- Designate the management agencies and obtain commitments to carry out their responsibilities under the plan.
- Show the goals and schedules for implementing the plan.

- Provide an environmental assessment of the proposed plan and program.
- Provide a process for the monitoring and evaluation of effectiveness of applied practices and a process for modification of the control program.
- There was a concern that the word "Recommendation" in the Recommendations Section was not strong enough and that the order of the individual recommendations should be changed.

The recommendations state that those participating in the planning process considered the recommendations paramount in meeting water quality goals. The numbering of recommendations, or the order in which they appear, was not intended to establish priorities or ranking. The numbering has been dropped.

- A concern was expressed about the statement that the proposed plan will result in improved water quality.

The 208 Dryland Technical Advisory Committee (DTAC) has certified that county BMP affixed as appendices to the State 208 Dryland Agriculture Water Quality Management Plan meet standards of technical adequacy and will progress toward meeting state and federal water quality goals. This certification is contained in Appendix III of the plan.

- There were questions as to whether the program will remain a voluntary, locally controlled program.

The dryland agricultural producers favor a locally managed and locally operated program using existing agencies and organizations to provide the leadership and management skills. The Dryland Agriculture Water Quality Management Plan is a voluntary, locally controlled program.

DOE Director Wilbur G. Hallauer in his policy memorandum dated January 24, 1978 supports a voluntary, locally controlled program. See Appendix V.

- The plan did not, but should have, addressed the agricultural chemical problem and the need for use of present chemicals or better chemicals to control pests.

The third draft plan does include a section on chemicals in Section V under Incentives, and also in the Research section (VI).

- Concern was expressed that an interagency education/information program be funded and staffed, and directed toward public land and water users, landowners, and land operators.

The plan provides guidance for a coordinated interagency education/information program as part of the conservation district (management agency) 208 plan of work.

Funds will be sought to carry out an education/information program. Based on the March 1979 work plan, EPA will be funding the initial phases of the 208 program. A summary of estimated financial needs developed by the local conservation district and water quality committees is included in the appendix.

- Producers expressed great concern regarding the conflicts between environmental programs and the Food and Agricultural Act that penalizes producers for adopting water quality improvement or conservation practices on their farms.

The conflicts continue to exist, but they have been brought to the attention of Congress, EPA (nationally and at the regional level), the Secretary of Agriculture, and the administrators of ASCS and SCS.

The plan addresses these conflicts in the following sections: Problem Statement, Conclusions and Recommendations, and Incentives. Conservation districts will document individual producer conflicts and provide the supporting documentation to agencies that can remove these conflicts.

- The opinion was voiced that BMP lists should not be forwarded to the DOE and EPA, and that a certification of the technical adequacy of BMP by the DTAC should be included in the plan.

A memorandum titled "Inclusion of Best Management Practices in 208 Agricultural Plans" dated February 2, 1979, is included in Appendix V of the plan. The BMP certification by DTAC is also included in Appendix III.

- Many people stated that conservation districts needed financial assistance and additional technical assistance to carry out their responsibilities as management agencies.

A work plan for dryland agriculture has been submitted to EPA which would provide funds to carry out the WQMP in the initial phases.

House Bill 379 was introduced in the State Legislature seeking funds for conservation districts to carry out their district programs. The bill failed to pass in the 1979 Legislative Session. An interim study was authorized by the House Appropriations Committee. The objectives of the study are to identify funding needs for conservation districts, and to monitor the implementation efforts now being made by districts designated as management agencies.

- Concerns were raised about the economic costs developed at the local level.

The estimated costs developed in each county to carry out a program to reach the 1983 goals are included in Appendix IV.

- The research needs should be addressed in the plan.

The research needs developed by the counties are included in the third draft of the plan.

ENVIRONMENTAL ASSESSMENT

EPA regulations require the preparation of an "environmental assessment" which is to describe the impact of adopting a water quality management plan (WQMP). To meet this requirement, the following analysis addresses 6 major topics:

1. Description of the existing environment without implementation of the WQMP alternatives.
2. Description of the future environment without implementation of the WQMP alternatives.
3. Evaluation of alternative elements of the plan.
4. Impacts of WQMP implementation.
5. Steps to minimize any adverse impacts.
6. Constraints affecting plan implementation.

The Existing Environment

The area affected by the proposed 208 plan is the dry cropland in Adams, Asotin, Columbia, Douglas, Garfield, Grant, Klickitat, Lincoln, Spokane, Stevens, Walla Walla, and Whitman Counties. This includes approximately 5.2 million acres farmed by approximately 7,750 producers. Farm size in the lowest precipitation areas averages about 2,500 acres, while farms in the high precipitation areas average about 500 acres. Generally, more than 50 percent of the farms have absentee owners.

The physical environment of the area varies from rolling hills to steep slopes. Soil erosion occurs as a natural geological process, but is accelerated by man. Soils with the greatest slope or steepness have the highest potential for erosion. Within the planning area, the amount of land with the highest potential hazard varies from 2 to 18 percent. The sediment delivery ratio varies from 10 to 45 percent, depending on the physical watershed characteristics.

Most of the dryland producers use some form of commercial nitrogen fertilizer to maximize yields. Although nitrates in dryland area streams often originate from agricultural land, the original source cannot be distinguished from fertilizer, organic matter, or plant residue sources. Nitrates move with soil water, and percolate through the soil profile as subsurface drainage. Nitrogen fertilizers applied in the dryland area are injected 6 to 8 inches beneath the soil surface. At these depths they are not normally picked up by sheet and rill erosion.

Sulfur and phosphorus are used in areas where producers recrop or annually crop. Sulfur reacts similar to nitrogen fertilizer in the soil, but at a slower rate and in smaller quantities. Phosphorus is strongly bonded to soil particles, and is transported easily with soil from eroded fields.

Pesticides are commonly used throughout the dryland farming area. All pesticide applicators in Washington are licensed, which should assure protection of the public and environment through correct application procedures and rates. Application of the majority of pesticides occurs during the spring growing season, after 70 percent of the precipitation for the year has occurred and the erosion hazard is reduced.

Future Environment Without Implementation of the 208 Program

The future environment without the proposed program would not differ significantly from the existing environment. Concerned producers would continue to improve their management with ongoing conservation district activities and research. Less-concerned producers would hopefully be affected by the conservation ethic expressed by the conservation districts.

If acreage limitations on grains are not imposed in future commodity programs, then erosion and sedimentation will be reduced. If grain production is limited, there may be a continued deterioration in water quality. Water-based recreation sites along the Snake River considered for development by the Corps of Engineers may be jeopardized due to high levels of sedimentation. The life of dams could be effectively increased if sediment deposition were reduced.

Evaluation of Alternative Elements of the Plan

This plan represents the consensus of a wide range of individuals participating in the planning process. During the planning process, numerous alternative approaches were considered. This plan represents the most acceptable alternative. The most significant alternatives considered, and the reasons for their rejection are explained below.

1. An alternative considered was to identify conservation practices currently in use by producers, and use them as a starting point to prepare BMP lists. This was rejected in favor of asking producers to develop BMP lists independent of just those practices commonly used in their area.

A second alternative considered was to develop BMP specific to certain identified problem sites. This was rejected in favor of developing BMP applicable to all lands within the planning area, so that all producers could enter into the planning process.

To gain the greatest amount of participation in and acceptance of the planning process, it was decided that all producers should have the opportunity to provide input into methods to improve water quality. Widespread participation would allow every producer to contribute to better water quality by practicing better management techniques.

2. Early in the planning process, producers recognized that a local organization rather than a state agency should direct implementation of the WQMP. It was felt that a local agency would have a better understanding of natural resource problems at the local level, and would be more successful in sponsoring an information/education program with producers.

Producers recommended the conservation districts as the management agency instead of creating a new entity. Conservation districts have all the necessary legal and institutional authority, and are willing and able to begin implementation of the WQMP.

The water quality committee was considered as an alternative to direct the program. Also in multi-district counties a combination of representatives of conservation district supervisors, ASCS county committee members, and county government was proposed. Each was rejected because it would take new enabling legislation. A management agency needed to be ready to begin implementation in 1979.

3. The conservation districts and DOE will work together to assist operators of problem sites to correct their water quality problems. An alternative was to delegate regulatory responsibility to the conservation district. This was rejected by the conservation districts because it would require new enabling legislation. County government's use of nuisance laws to enforce water quality violations was another alternative considered, but rejected because it was felt that enforcement of water quality laws would be given a low priority and be ineffective.

Environmental Impacts of the Proposed Implementation of the WQMP

The proposed plan will improve water quality in the project area. At the present time, it is impossible to determine whether the 1983 goal of fishable-swimmable waters will be met.

The most significant impact will be a reduction in soil erosion and the resultant sediment delivery to the stream systems. Rivers and streams will be less impacted by sediment. Marinas and recreational facilities can be established with reduced risk of losing them to sedimentation. The life expectancy of hydroelectric dams may be extended and runoff flows reduced. Counties will not have to spend as much to clean road ditches and drainageways.

Producers who opt to take their steep lands out of production will reduce the overall production for the area, but will increase the wildlife habitat for upland game birds.

The public awareness program will better inform a large segment of the population of the difficulties and complexities of control measures in dryland agriculture. The implementation of the proposed plan will affect the conservation district and support agencies. Increased resources will be needed to make the WQMP effective.

Programs affecting agriculture should be compatible with the plan objectives. Agricultural producers have not found a way to pass the cost of pollution abatement on to consumers. It is imperative that the Food and Agriculture acts that impose constraints on production be administered so that they are compatible with pollution control laws.

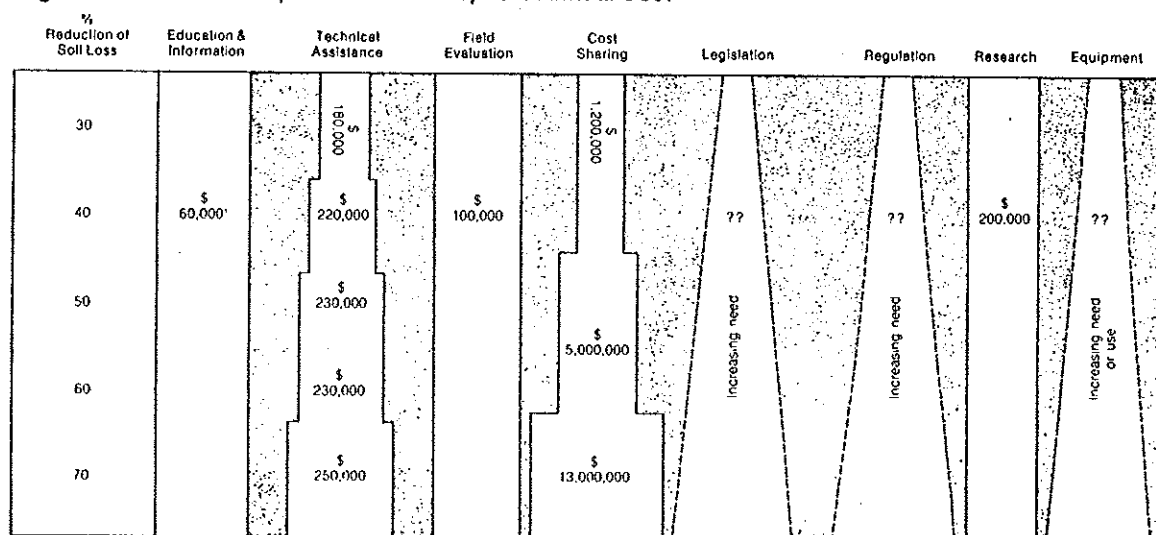
Economic Impacts of the WQMP

A county by county estimate of the costs of implementing the water quality management plan is provided in Appendix IV. Costs are estimated for: Education/Information, Water Quality Assessment, Research, Cost-Share, Management Agency Operations, and the Appeals Board. There are wide variations in estimates. For Education/Information the costs range from \$785 per year to \$47,200 per year. The estimated yearly costs of the water quality assessment range from \$3,000 to \$503,800; for research the range varies from \$1,000 to \$458,000 per year. The requirements for cost-share assistance also vary from a low of \$214,760 to a high of \$11,000,000. Management agency operations costs on a yearly basis range from \$19,800 to \$140,000 and those for the Appeals Board from \$540 to \$13,250. The total estimated yearly program costs range from \$38,400 to \$11,079,440.

Costs to the individual farmer are more difficult to estimate. Much depends upon the specific field or area, the type of practices already in place, and the levels and erosion reduction desired. A 30 percent reduction in erosion will cost less than a 70 percent reduction.

The cost estimates in the Palouse Cooperative River Basin Study^{2/} are presented for comparison.

Figure 1 Palouse Implementation Proposal^{2/} Annual Cost^{2/}



¹Includes 1st year cost of \$100,000
\$50,000/yr. thereafter.

² 10-year program.

The variations and ranges in costs between the water quality committees reflect differing perceptions as to the effort required, and the degree of erosion reduction necessary to solve the water quality problems.

^{2/} Op. cit.

Steps to Minimize Any Adverse Effects

Adverse effects of the WQMP would be in the following areas:

1. Adverse economic impacts on farmers; and
2. Conflicts between the farm programs and pollution control laws.

Methods to minimize adverse economic impacts on dryland farmers would allow them time to voluntarily plan and resolve problem sites on their farms. Such methods would include providing cost-share funds, tax incentives, and technical assistance to farmers implementing BMP.

Disputes will be resolved by locally elected and appointed conservation district supervisors and a local nonjudicial Appeals Board.

Methods to minimize conflicts between farm programs and pollution laws have not been successful, but efforts to resolve these conflicts will continue.

Constraints Impacting Achievement of Plan Objectives

The following discussion identifies the various factors which will impact the success of the plan.

1. Farm Prices

The economic health of individual producers may be the greatest contributing factor determining the success or failure of the WQMP. When crop and livestock prices are high and farmers make a profit, they will be willing and able to invest in conservation practices. Conversely, when prices are depressed, the requirement that BMP be economically feasible may force many water quality problems to remain uncorrected.

Forecasts of long-term farm prices, and therefore the capability of producers to adopt BMP, are unpredictable. The probable pattern of BMP implementation will be one of considerable variation from year-to-year, depending on the prevailing farm prices.

2. Awareness and/or Concern about Water Quality Problems

A second factor affecting producers' willingness to adopt BMP is the level of awareness and/or concern about the water quality problems caused by sediment. After two years of planning effort, the level of awareness among dryland producers is high. The WQMP outlines an information/education program to be implemented by the conservation district, SCS, and Cooperative Extension to keep the farming public aware of the program and the reasons for it. The success of the information/education effort in raising the level of concern among producers will be a major factor affecting the success of the program.

3. Availability of Financial and Technical Resources

The conservation districts' MAIS contained in the appendix to the WQMP list the manpower and financial resources available to the involved agencies. The resources available are limited and are probably below the level which are needed to realistically meet the goals and objectives of the plan.

The greatest need is for trained personnel who will work with individual districts, provide technical assistance, identify problem sites, and perform the necessary administrative duties. Six such positions have been proposed for funding in the dryland areas of the state. The positions will be funded through individual conservation districts. The employees will be responsible to the district. When more than one district shares an employee, operating agreements will be completed.

4. Availability of Financial Incentives

The availability of financial incentives to assist farmers in implementing BMP will influence the success of the program. Current ACP cost-share programs will continue to be available to farmers, but not all BMP are eligible under the program. When Congress passed the Clean Water Act, it included an amendment to Section 208 which provides for cost-share funds to be given to farmers in certain project areas. The success of this federal program will depend upon how well it is funded by Congress. No funds were authorized for expenditure under this amendment during the 1979 fiscal year.

Recent changes in the Watershed Protection and Flood Prevention Act, Public Law 83-566, allow programs which contain only land treatment measures. Funds are presently available for use where significant beneficial impacts in reducing erosion and improving water quality can be demonstrated.

State Referendum 26 funds are not available to assist individual farmers to implement BMP because the state constitution precludes the issuance of state funds to private individuals. If a public entity were formed and a pollution control structure built, Referendum 26 funds could be made available.

5. Dependence on a Voluntary - Nonregulatory Process

The implementation procedure outlined in the WQMP relies on voluntary compliance by local farmers. All of the water quality committees felt the plan would be more acceptable if the voluntary nature of the plan were emphasized. The most important need is to provide information and technical assistance to producers with identified problem sites and to help them try alternative methods to control their individual problems.

The plan contains procedures for regulatory action by DOE. This would be called for by the conservation district only after all other attempts at voluntary compliance had failed. If farmers are

unwilling to comply voluntarily, or if the districts are unwilling to call for regulatory action, the lack of an enforcement element could affect achievement of the plan objectives. DOE has taken the position that the voluntary elements of the program will be given every opportunity to work before a decision would be made whether to seek broader regulatory authority.

6. Dependence on a Complaint Process

The complaint is one method of identifying problem sites. Although a complaint has a regulatory connotation, it is important that it be permitted in the procedure. The public will need to be informed of problem site criteria and the proper procedures for filing complaints. The WQMP describes a complaint procedure. However, the conservation districts will rely on other means of identifying problem sites as the primary process for involving producers in the program.

7. Effectiveness of Management Practices

The effectiveness of the management practices implemented by local producers will influence achievement of plan objectives. Cause and effect relationships between specific practices and their effectiveness in improving water quality are poorly understood. As a result, it is not known to what degree the BMP will result in improving the quality of the water.

8. Nonpoint Pollution Abatement vs. Food and Agriculture Act Conflicts

Short-term production control programs have been used to stabilize the grain production industry and to assure the producer a return for his labor and investment. A conservation plan incorporates grain crops with soil building crops in a rotation with tillage and support practices that will reduce soil erosion and sedimentation. Long-range conservation planning is difficult to sustain with short-term (annual) production program determinations. Soil building crops, tillage programs, and support practices require long-range planning and management for implementation. Administration of short-term commodity production programs fails to recognize the value of the long-term soil building crops, tillage programs, and support practices. Producers who enter into a voluntary long-term conservation program have placed themselves at a disadvantage when compared with producers who do not make a long-term conservation commitment and can adjust to annual changes in the production-oriented program.

A P P E N D I X I

MANAGEMENT RESPONSIBILITIES FOR IMPLEMENTATION PROCESS

Activity	Responsibility							
	CD	SCS	ASCS	CE	DOE	CC	WQC	Other Agencies
I. Water Quality Assessment								
A. Problem Area Identification	X	X		X			<u>X</u>	
B. Problem Site Identification	<u>X</u>	X	X	X	X		X	X
II. Nonpoint Pollution Assessment								
A. BMP inventory	<u>X</u>	X	X	X				
B. BMP Effectiveness	<u>X</u>	X		X	X		X	X
C. Monitor Climatic Conditions	<u>X</u>	X		X			X	X
III. Education - Information Program	X	X	X	<u>X</u>		X	X	
IV. Incentives	X	X	<u>X</u>			X		
V. Research	<u>X</u>	X		X	X	X	X	X
VI. Problem Solving	<u>X</u>	X	X	X	X	X	X	X
Revise BMP	X	X	X	X	X	X	<u>X</u>	X
Annual Plan of Work	<u>X</u>	X	X	X	X	X	X	X

CD - Conservation District

SCS - Soil Conservation Service

ASCS - Agricultural Conservation and Stabilization Service

CE - Cooperative Extension Service and Washington State University

DOE - Department of Ecology

CC - Conservation Commission

WQC - Water Quality Committee

X - Lead Responsibility

X - Responsibility

Anticipated Outputs of Management and Support Agencies

Anticipated outputs resulting from implementation of the water quality management plan and the expected schedule for carrying out activities are:

Anticipated Outputs	Year				
	1979	1980	1981	1982	1983
1. Annual plan of work	●	●	●	●	●
2. Commitment of technical resources	●				●
3. Hiring of district & Commission personnel	●	●			
4. Completion and signing of Management Agency Implementation Statements	●				
5. Implement education-information program	●				●
6. Inventory BMP adoption	●				●
7. Evaluate BMP effectiveness	●				●
8. Monitor climatic conditions	●				●
9. Identify problem sites	●				●
10. Complete site plans	●				●
11. Adoption of BMP by producers	●				●
12. Documentation of complaints filed	●				●
13. Annual evaluation and submission of annual report	●	●	●	●	●
14. Develop applications for RCWP and P.L. 566 and Special ACP Projects	●	●	—	—	●

A P P E N D I X I I

Definition of Terms

<u>Alternative End Product</u>	Describes the percentages of crop residue at or near the soil surface following a stubble mulch program and/or describes the soil aggregate size on the soil surface following some tillage program.
<u>Annual Cropping</u>	Land which is seeded and harvested every year.
<u>Best Management Practices</u>	The term Best Management Practices (BMP) means a practice or combination of practices that is determined by a state (or designated areawide) planning agency after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economical, and institutional consideration) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.
<u>Chiseling</u>	Breaking or loosening the soil without inversion with a chisel cultivator or chisel plow.
<u>Cloddy Surface</u>	Soil aggregates greater than one inch in any one dimension covering a representative soil surface.
<u>Conservation Cropping System</u>	Growing adapted crops in combination with needed cultural management measures to conserve the soil.
<u>Contour Farming</u>	Conducting field operations, such as plowing, planting, cultivating, and harvesting, on the contour.
<u>Contour Seeding</u>	See Contour Farming.
<u>Cover Crop</u>	A close growing crop grown primarily for the purpose of protecting and improving soil between periods of regular crop production or between trees and vines in orchards and vineyards.
<u>Crop Rotation</u>	The growing of different crops in recurring succession on the same land.
<u>Cross Slope Seeding</u>	The seeding operation done across the general slope.

<u>Debris Basin and/or Debris Dam</u>	A barrier built across a stream channel to retain rock, sand, gravel, silt, and/or other material.
<u>Desilting Basin</u>	An area used for inducing deposition of silt and other debris from flowing water.
<u>Diversion</u>	A channel and an earth embankment or ridge constructed across the slope to lead water to a protected area.
<u>Divided Slope</u>	Dividing a slope into a crop and summer fallow or two different types of crops with farming operations across the slope.
<u>Double Seeding</u>	Performing two seeding operations on the same area to establish an extra thick stand of plants.
<u>Drop Spillway</u>	Overfall structure in which the water drops over a vertical wall onto an apron at a lower elevation.
<u>Drop Structure</u>	A structure for dropping water to a lower level and dissipating its surplus energy; a fall. A drop may be vertical or inclined.
<u>Early Seeding</u>	Late summer or early fall seeding of winter cereal grain to reduce soil losses from erosion. (See individual county BMP for appropriate dates.)
<u>Erosion</u>	Detachment or movement of soil or rock fragments by water, wind, ice, or gravity.
<u>Grassed Waterway (Grass Waterway)</u>	A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from cropland.
<u>Green Manure</u>	Any crop grown for the purpose of being turned under while green or soon after maturity for soil improvement.
<u>Gully</u>	A channel or miniature valley cut by concentrated runoff, but through which water commonly flows only during and immediately after heavy rains or during the melting of snow. The distinction between gully and rill is one of depth. A gully is sufficiently deep that it would not be obliterated by normal tillage operations, whereas a rill is of lesser depth and would be smoothed by ordinary farm tillage.

<u>Gully Erosion</u>	The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to a considerable depth of one foot or more.
<u>Minimum Tillage</u>	Limiting the number of cultural operations to those that are properly timed and essential to produce a crop and prevent soil damage.
<u>No-till</u> <u>No-tillage</u> <u>Zero till</u>	A method of planting crops that involves no seedbed preparation other than opening the soil for the purpose of placing the seed at the intended depth. This usually involves opening a small slit or punching a hole into the soil. There is usually no cultivation during crop production. Chemical weed control is normally used. Also referred to as slot planting or zero tillage.
<u>Permanent Cover</u>	Perennial plants such as grasses, legumes, trees, shrubs, or vines that are maintained on the land for an indefinite period of time.
<u>Physiographic</u>	Description of an area with similar soils, topography, precipitation, and other climatic conditions.
<u>Recropping</u>	A local term used throughout the dryland area with local meanings. Generally, it has the same meaning as annual cropping.
<u>Rill</u>	A small, intermittent water course with steep sides, usually only a few inches deep and, hence, no obstacle to tillage operations.
<u>Rill Erosion</u>	An erosion process in which numerous small channels only several inches deep are formed; occurs mainly in recently cultivated soils.
<u>Sediment Dam</u>	See Debris Basin.
<u>Sediment Pond</u>	See Debris Basin.
<u>Sheet Erosion</u>	The removal of a fairly uniform layer of soil from the land surface by runoff water.
<u>Silt Basin</u>	See Debris Basin.

<u>Spring Wheat</u>	A small cereal grain which is seeded from early to late spring and matures and is harvested in the same summer.
<u>Straw Relocation</u>	Mechanically moving straw from heavy production areas to light production areas.
<u>Stripcropping</u>	A systematic arrangement of strips or bands across the slope consisting of alternating crops and/or crops and summer fallow used to reduce erosion.
<u>Stubble Mulch</u>	Performing tillage operations that maintain protective amounts of plant residues on or near the soil surface. This practice is done during the fallow period to protect the soil during the growing of the succeeding crop.
<u>Subsurface Drain</u>	A conduit installed underground that collects and/or conveys water.
<u>Subsoiling</u>	Loosening the soil, without inversion and with a minimum of mixing of the surface soil, to shatter restrictive layers below the normal tillage depth.
<u>Summer Fallow</u>	Land maintained free of live vegetation during the growing season.
<u>Terraces</u>	Embankments or combination of embankments and channels constructed across the slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope.
<u>Trashy Fallow</u>	See Stubble Mulch.
<u>Uphill Plowing</u>	Plowing in such a manner that the furrow is turned uphill.
<u>Winter Wheat</u>	A small cereal grain that is a winter annual which is seeded in the late summer to late fall of one year and matures and is harvested the following summer.

Abbreviations

ACP	Agricultural Conservation Program
ASCS	Agricultural Conservation and Stabilization Service
BMP	Best Management Practices
CC	Conservation Commission
CD	Conservation District
DOE	Department of Ecology
DTAC	Dryland Technical Advisory Committee
EPA	Environmental Protection Agency
MA	Management Agency
MAIS	Management Agency Implementation Statement
NCA	Normal Crop Acres
PAC	Policy Advisory Committee
RCW	Revised Code of Washington
RCWP	Rural Clean Water Program
SCS	Soil Conservation Service
SEA,AR	Science and Education Administration, Agricultural Research
USDA	United States Department of Agriculture
WACD	Washington Association of Conservation Districts
WQMP	Water Quality Management Plan
WSU	Washington State University

A P P E N D I X III

PLEASE SEE

DRYLAND AGRICULTURE
WATER QUALITY MANAGEMENT PLAN
APPENDIX III
DOE 79-5d (2)

for Best Management Practices

A P P E N D I X IV

ESTIMATED PROGRAM COSTS

County		Education- Information	Water Quality Assessment	Research	Cost Share	Management Agency Operations	Appeals Board	County Total
ADAMS	1	\$ 15,000	\$ 10,000	\$ 5,000	\$ 440,000	\$ 76,250	\$ 2,250	\$ 548,500
	2	14,500	10,000	5,000	440,000	55,250	1,250	526,000
ASOTIN	1	9,390	3,000	5,000	1,800,000	44,900	7,500	1,869,790
	2	9,390	3,000	5,000	1,200,000	34,900	2,500	1,254,790
COLUMBIA	1							
	2							
DOUGLAS	1	7,500	2,000	---	1,188,750	108,000	5,500	1,311,750
	2	7,300	2,000	---	1,188,750	82,000	5,500	1,285,550
GARFIELD	1	5,200	3,000	5,000	214,760	40,000	8,000	275,960
	2	5,200	3,000	5,000	214,760	30,000	8,000	265,960
GRANT	1	1,950	500	---	291,499	48,790	---	342,739
	2	1,950	500	---	291,499	48,790	---	342,739
Klickitat	1	785	1,500	---	---	19,800	3,100	25,185
	2	785	1,500	---	---	19,800	600	22,685
LINCOLN	1	6,200	3,000	30,000	290,000	163,500	---	492,700
	2	6,200	3,000	30,000	290,000	140,000	---	469,200
SPOKANE	1	47,200	503,800	458,000	1,525,000	92,500	13,250	2,639,750
	2	47,200	503,800	458,000	1,525,000	92,500	13,250	2,639,750
STEVENS	1	6,400	3,000	---	---	46,000	3,000	58,400
	2	6,400	3,000	---	---	26,000	3,000	38,400
WALLA WALLA	1	3,850	3,000	1,000	11,000,000	100,050	540	11,108,440
	2	3,850	3,000	1,000	11,000,000	71,050	540	11,079,440
WHITMAN	1	13,500	3,200	5,000	3,533,333	132,901	7,000	3,694,934
	2	13,500	3,200	5,000	3,533,333	102,551	3,000	3,660,584
TOTAL	1	\$116,975	\$536,000	\$509,000	\$20,283,342	\$872,691	\$50,140	\$22,368,148
	2	116,275	536,000	509,000	19,683,342	702,841	37,640	21,585,098

1 = 1st Year Costs

2 = Annual Costs

A P P E N D I X V



STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY

Olympia, Washington 98504

206/753-2240

Wilbur G. Hallauer, Director

M E M O R A N D U M

January 24, 1978

TO: Policy Advisory Committee on Areawide Wastewater
Planning, Section 208 of PL 92-500

FROM: Wilbur G. Hallauer, Director *WGH*

SUBJECT: Policy Statement for Implementing Local Programs for
the Control of Agricultural Non-Point Sources of Waste

During the last two years the Department of Ecology has been implementing the requirements of Section 208 of the Federal Water Pollution Control Act. Under this Section each state is required to develop a program to control both point and non-point sources of waste on an areawide basis. In Washington, the Department of Ecology has placed emphasis on the control of agricultural non-point sources of waste.

In December 1977, the Federal Act was amended to provide that irrigation return flows be considered a non-point source of waste and therefore be controlled through programs developed in compliance with Section 208 of the Act. This amendment is a significant milestone in developing a realistic approach to the control of agricultural waste, since it recognizes the areawide nature of water quality effects of irrigation practices and removes the requirement to impose end-of-the-pipe treatment to irrigation return flows. This amendment also brings together the planning concepts for dryland and irrigated agriculture control programs.

The planning concept pursued by the Department follows the basic philosophy set forth by Congress in the Federal Act. This philosophy places the responsibility for reasonable

reductions in discharged wastes upon all dischargers irrespective of the ability of the receiving waters to assimilate such waste. Thus, just as cities, industries, and commercial dischargers are required to install best practicable waste treatment technology, farming operators are expected to utilize best management practices.

I am very pleased with the efforts of public and private organizations that have been participating in the development of a proposal for the control of the non-point sources of agricultural waste. It is the diverse nature of this participation which characterizes the agricultural waste problem.

Now that our planning effort is nearing completion, we are confronted with defining the roles of local organizations and the Department of Ecology in a program to control agricultural wastes. Because the perception of the agricultural community is so diverse as to the methods for solving problems causing non-point sources of waste, it is the Department's intent to utilize a well structured, voluntary program carried out at the local level of government where the joint efforts of all public and private organizations can be obtained. The Department of Ecology's direct involvement will be limited to financial and technical assistance and the monitoring of local accomplishments.

It is the position of this Department that no regulatory program will be required until such monitoring determines that a voluntary approach has not resulted in the control of non-point sources of waste as required by the Federal Water Pollution Control Act. Should such a conclusion be reached some time in the future, the need for regulatory sanctions will be assessed and brought to the Washington State Legislature for clarification. It is the position of this Department that the use of regulatory sanctions should be a direct expression of authority spelled out clearly in Washington State law for the purpose of agricultural non-point sources of waste.

The current proposals which contain a process to refer complaints to the Department which can not be dealt with through the local voluntary program will be accepted when obviously supported by

Policy Advisory Committee
January 24, 1978
Page No. Three

the local people. Appropriate enforcement action will be taken by the Department under existing state law when the authority and cause of that action is clear to the Director. In other instances, the complaint will be registered without enforcement action as a part of the process to document the success of the voluntary program.

The Federal Water Pollution Control Act, as amended by Congress in 1977, offers the state a rare opportunity to not only design a control program, but to carry out such a program without the burden of federal oversight or threat of enforcement. The Federal Act does not require the state to impose regulatory sanctions nor does it mandate that a voluntary program alone shall be utilized. I believe Section 208 leaves to the states the discretion to determine the regulatory and non-regulatory aspects of non-point source programs. However, it is clear that the federal law requires that our efforts be successful in meeting national goals of water quality improvement.

It is my desire to continue the local planning program currently under way. It should now focus on establishing the proper milestones of achievement for the Department to use in reviewing the success of a local agricultural program. I encourage you to assist the Department in working with local organizations to gather adequate information in order to determine what is a practical level of non-point source waste control.

WGH:nd



STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY

Olympia, Washington 98504

206/753-2800

Mail Stop PV-11

M E M O R A N D U M

February 2, 1979

TO: Policy Advisory Committee Members

FROM: John F. Spencer, Assistant Director *John F. Spencer*

SUBJECT: Inclusion of Best Management Practices in 208 Agricultural Plans

During the past several months, the advisability of including Best Management Practices (BMP) in the statewide 208 Water Quality Management Plans has been debated at some length. The purpose of this memorandum is to state the Department of Ecology's position on this subject.

Background: The Department of Ecology entered into statewide 208 planning in 1976. During early stages of implementing the point source permit requirements of the Federal Water Pollution Control Act, it became evident that pollutant source control was more practicable than using "end of pipe" treatment technologies. Indeed, the experience in the United States of using the Soil Conservation Service and the Extension Service of the U.S. Department of Agriculture demonstrated the real value of better farm management practices to control sedimentation. Therefore, the State of Washington, along with many water and land user groups, sought to change the Federal Water Pollution Control Act. This was accomplished by placing agricultural sources, except for dairies, under the nonpoint source category of the act (Section 208) and by addressing those sources through management practices rather than treatment technology.

During the same period, and particularly during 1975-1977, the Department of Ecology was involved in developing a program under state law to reduce water pollution from forest management activities. The results of this effort are contained in the regulations, required by the Forest Practices Act, which outline practices to protect water quality.

The 208 planning process has confirmed that the use of BMP is a desirable way to address water quality problems from agriculture, provided that the BMP do not become regulations or mandatory requirements. Members of the agricultural community involved in this process prefer using BMP as a guide instead of a mandatory part of an agriculture pollution control program. This approach gives the landowner or operator the ability to choose and design those practices or group of practices that fit his particular operation, i.e., given different soil conditions, slope of

February 2, 1979

Page two

the land, and crop, the operator can tailor any number of practices to fit his individual circumstance.

The Department of Ecology agrees that the use of BMP should be on a voluntary basis.

The Department of Ecology will be including BMP in the appendix to our water quality management plans. There are many reasons for this. The development of BMP has been an integral part of the state's 208 planning program. As a result, BMP are a part of the control process which was developed through 208 planning. During this planning, BMP were identified as a general guide that farm operators could use when developing a farm management program to improve water quality. While final 208 plans contain a list of potential management practices, they are not considered best management practices until they are put into use by individual farm operators.

The management practices handbook developed for the irrigated agriculture program will be included in the appendix when the plan is submitted to the Governor. This handbook is now being printed and will be available for use in late February. A draft copy was previously sent to you.

In discussions with EPA, Department of Ecology DOE staff learned that BMP are considered a part of the entire 208 program. The need to include BMP in the plan is considered a requirement of the Federal Water Pollution Control Act and the rules and regulations developed to implement the act by EPA. Several key provisions of the act and the regulations include:

- 208(b)(2)(F)(11) ". . . set forth procedures and methods including land use requirements, to control to the extent feasible such sources;"

Although this section begins with the requirement to develop a process to identify agriculturally and silviculturally related nonpoint sources, it ends with the above phrase to identify those procedures and methods for controlling nonpoint sources. The requirement for BMP to be developed as a part of a 208 plan can be referenced to this section if they are the basis for control.

- 40 CFR 131.11(J)(1) "For each category of nonpoint sources . . . an identification and evaluation of all measures necessary to produce the desired level of control through application of Best Management Practices . . ."

This section of the regulations goes on to point out that agriculturally and silviculturally related wastes are considered nonpoint sources. As such, BMP are considered necessary portions of any plan to control water pollution from such sources.

February 2, 1979

Page three

- 208(b)(3) "Areawide management plans shall be certified annually by the Governor . . . and such areawide waste treatment management plans shall be submitted to the administrator for his approval."

EPA has the responsibility to approve 208 plans prepared by the state or other designated areas.†

When Congress amended the Federal Clean Water Act and provided for a cost-share program for agricultural pollution control measures (Rural Clean Water Program), the following provisions were included.

- 208(J)(1) . . . the secretary . . . acting through the Soil Conservation Service . . . is authorized and directed to establish . . . a program . . . for the purpose of installing and maintaining measures incorporating BMP to control nonpoint source pollution for improved water quality . . . which the administrator has approved a plan under subsection (b) of this section where the practices to which the contracts apply are certified by the management agency . . . to be consistent with such plans and will result in improved water quality. . . .

Regulations developed to implement this section of the act further explains the necessary relationship between developed BMP and the ability of an individual to receive RCWP cost-share money.

In 1976, during the time the department was preparing its work plans to conduct 208 planning, there were several meetings with EPA which addressed 208 plan outputs. It was in these meetings that the Department of Ecology committed to develop BMP for nonpoint sources. An example is the outputs list contained in our Irrigated Agriculture Plan. The individual work plans, when approved, become a part of our 208 grant agreement with EPA. As such, the department is considered to have a contractual obligation to develop BMP.

It is in light of the noted legal requirements, recommendations of staff, and support by local groups involved in the planning process that the Department of Ecology has decided to include lists of recognized management practices in 208 Water Quality Management Plans.

The Department of Ecology recognizes that management practices must be viewed as guidelines for use by individual operators. In this regard, and recognizing the advice of local water quality committees and our statewide Policy Advisory Committee, we will request that EPA limits its review to consideration of the water quality management process and control program established in the plan. We will not seek EPA review or

February 2, 1979
Page four

evaluation of any management practices contained in 208 planning. We ask that EPA only recognize that potential management practices are included in the plans and that they become BMP only when put in place by individual operators. It is our view that BMP can only be developed and implemented through the process identified in the management plan certified to the administrator of EPA by the Governor. Moreover, the Department of Ecology has received legal advice that the EPA has no authority, to enforce BMP.

We are therefore including BMP in our 208 Water Quality Management plans in order to present a state program approvable under the Federal Clean Water Act.

JFS:mg

020204

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101



REPLY TO
ATTN OF: MS 437

MAR 27 1979

Mr. Wilbur G. Hallauer
Director, Department of Ecology
P. O. Box 829
Olympia, Washington 98504

Dear Mr. Hallauer:

You have asked to be advised whether the Environmental Protection Agency (EPA) will itself enforce certain provisions of plans approved by EPA under Section 208 of P.L. 95-217. Specifically, you request to know, if, after approval of your agricultural plans with appendices containing Best Management Practices (BMPs), EPA will require individual farmers or groups of farmers to implement the Management Practices appended thereto.

Throughout the development of 208 plans EPA has recognized the complexity of establishing BMPs within the diverse social, economic, and geographical conditions in the State of Washington. We have fully understood and supported the need for local plan development and implementation processes in order to achieve successful programs of water pollution control in agricultural areas, particularly in dry land agriculture.

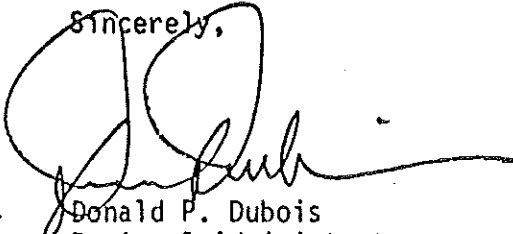
It is, therefore, with these factors in mind that we do not feel it would be appropriate nor do we intend to take regulatory action against individuals or groups of individuals to require the use of BMPs as submitted in your 208 plans for agriculture.

We have, as you know, insisted that the Management Practices developed during your planning program be submitted with your 208 plans. This has been required so that we may conduct a thorough review of your 208 plans. Our approval of these plans is ultimately based on this review and our judgment of whether or not the 208 plans will be successful in meeting the goals of the Water Pollution Control Act. Without a complete plan--one that includes the process to reduce wastes, including the use of BMPs--our review would be at best very incomplete and make it more difficult to get the plan approved. EPA will periodically evaluate the result of plan implementation. If realistic clean water goals are not being met, we will look to the Department of Ecology for appropriate action to achieve necessary pollutant reductions.

- 2 -

I hope this explains our position more fully.

Sincerely,



Donald P. Dubois
Regional Administrator



STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY

Olympia, Washington 98504

206/753-2240

Wilbur G. Hallauer, Director

March 27, 1979

Senator Frank Hansen
202-A Inst. Building
Olympia, Wa. 98504

Dear Senator Hansen:

Enclosed is a letter that I received from Don Dubois regarding our question of whether or not EPA will enforce best management practices that we have included in our 208 plan submittal under Governor Ray's certification.

In light of paragraph three of Mr. Dubois' letter, I feel the answer is clear. EPA will not require the use of best management practices through their own procedures.

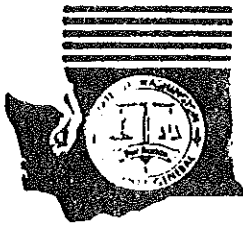
I have also asked Charlie Roe to provide me his legal assessment of whether or not the EPA has enforcement authority under Section 208. He will put this in writing and make it available to you very soon. However, he has orally advised that EPA does not have enforcement authority under Section 208 to require the use of best management practices, even though they are part of our 208 plans approved by EPA.

Yours truly,

A handwritten signature in dark ink, appearing to read "W. G. Hallauer".

Wilbur G. Hallauer
Director

WGH:nd



OFFICE OF THE ATTORNEY GENERAL

SLADE GORTON ATTORNEY GENERAL
TEMPLE OF JUSTICE OLYMPIA, WASHINGTON 98504

March 28, 1979

Honorable Frank "Tub" Hansen
Senator, 13th District
202-A Inst. Bldg.
Olympia, Washington 98504

Dear Senator *Tub* Hansen:

Web Hallauer has asked that I provide you with my view as to whether the United States Environmental Protection Agency has authority to enforce non-point source pollution control plans (sometimes referred to as best management practices plans) developed, consistent with section 208 of the Federal Clean Water Act, by the Washington State Department of Ecology under state law.

In my opinion, the Environmental Protection Agency does not have such authority. The enforcement powers of the Environmental Protection Agency are located primarily in Title III of the Clean Water Act. In my view, those powers do not relate to state established non-point source pollution control requirements developed consistent with section 208 of the federal act.

I trust this answers your inquiry. Please contact me if you desire to discuss the matter further.

Very truly yours,

Charlie

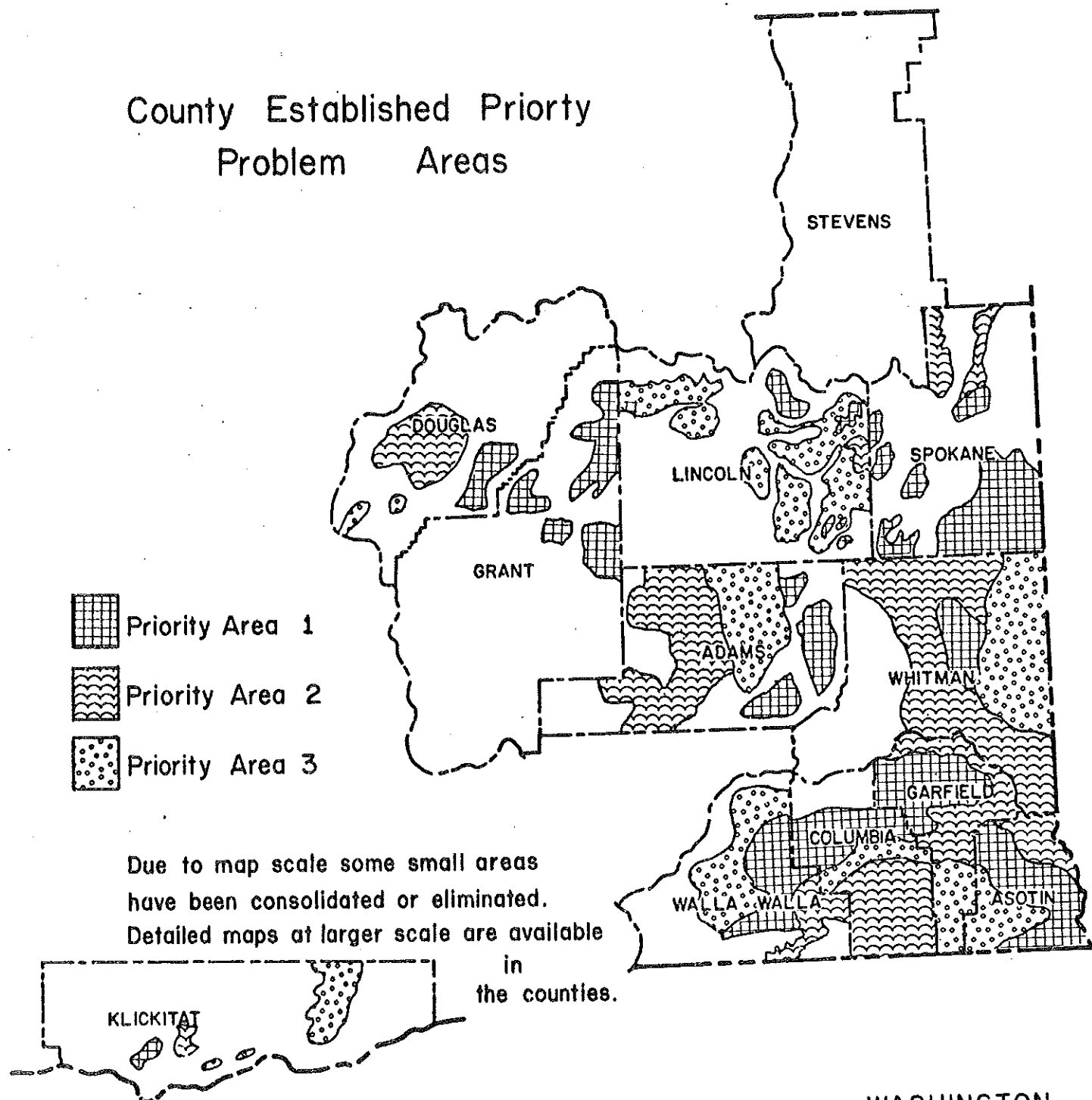
Charles B. Roe, Jr.
Senior Assistant Attorney General

CBR:bj

cc: Web Hallauer

A P P E N D I X VI

County Established Priority Problem Areas

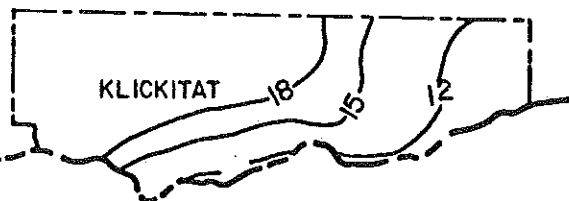
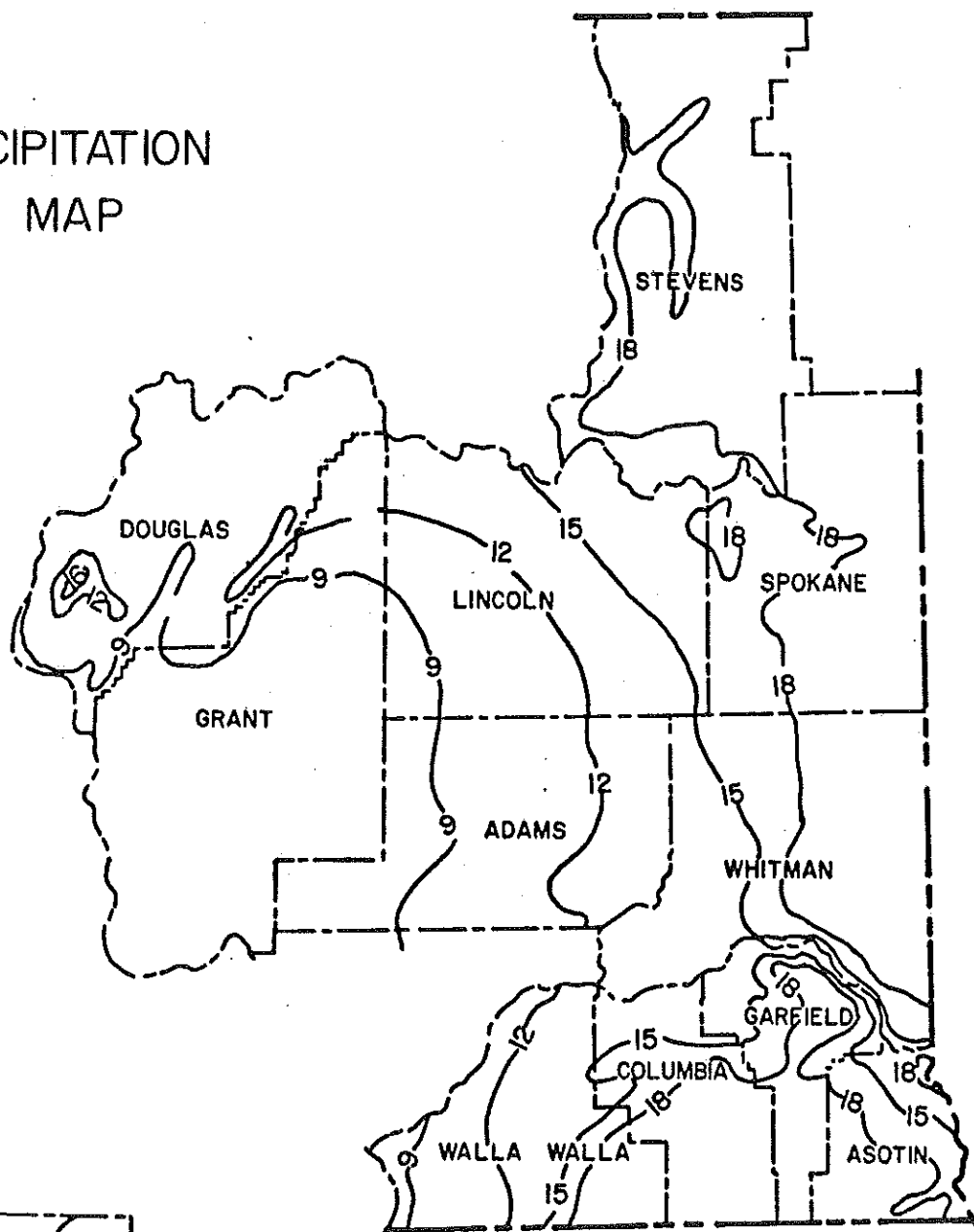


Map developed by conservation districts and local citizens using their knowledge of local topography, soils, erosion, and precipitation.

WASHINGTON

0 10 20 Miles

BMP PRECIPITATION ZONE MAP



WASHINGTON



A P P E N D I X VII

IMPLEMENTATION STATEMENT
by

_____ Conservation District

Specific Individual and Organizational Responsibilities Within the Agency

District programs are administered through a locally elected and appointed Board of Supervisors, as outlined under Chapter 89.08 RCW. Responsibilities of the Board include: providing for the conservation of renewable resources; control and prevention of soil erosion; prevention of flood water and sediment damages; and furthering agricultural and nonagricultural phases of conservation, development, utilization, and disposal of water.

Through contractual agreements with the conservation district, various federal, state, and local agencies provide technical and financial assistance to the cooperating owners/operators of land within the district.

District supervisors will discharge their administrative and coordinating functions as required for 208 implementation.

Major Responsibilities of the Management Agency

The _____ Conservation District will assume the role of local management agency for 208 implementation. This is being done in accordance with the statewide 208 plan for dryland agriculture and the Governor's designation of conservation districts as the local management agency responsible for plan implementation.

In its management role, and consistent with available resources, the district will be responsible for the activities outlined in Section II of the Water Quality Management Plan. A summary of these responsibilities include the following:

A. Management Responsibilities - Education/Information Program

Coordinate an informational/educational program to inform the general public and dryland producers (as needed).

1. Assist in the development of informational/educational materials.
2. Organize and provide various means of informing audiences about various aspects of 208.
3. Organize and provide training program opportunities.

B. Management Responsibilities - Program Operations

1. Identification and prioritization of problem areas.
2. Prepare an annual plan of work and necessary operating agreements.

3. Coordinate allocation of workload among cooperating agencies.
4. Establish a baseline of BMP applied.
5. Identify problem sites and provide assistance to those producers to plan and apply BMP.
6. Supervise activities of district employees within their jurisdictional area.
7. Process complaints received using the procedures outlined in the 208 plan.

C. Project Evaluation

1. Establish a tracking procedure to facilitate evaluation of program elements.
2. Provide information and data requested by the Conservation Commission to facilitate an annual assessment of the district's effectiveness as a management agency.
3. Assess progress in providing on-farm technical and financial assistance.
4. Evaluate the effectiveness of BMP and make revisions as necessary.
5. Prepare an annual report summarizing results of the above evaluations.

Schedule for Major Agency Actions and Outputs

See Section II of the Water Quality Management Plan.

Legal Authority

The _____ Conservation District can carry out its 208 responsibilities under the provisions of Chapter 89.08 RCW without additional legal authority.

Funding Support

The Conservation Commission will provide funding to support _____ Conservation District employee positions in the _____ County planning area. Manpower allocation to individual districts will be dependent on prioritization of problem areas. The _____ Conservation District will fulfill the above implementation responsibilities to the extent that manpower and other necessary resources allow. Funding and resource requirements to meet district responsibilities are presented in the attached budget.

Agreement Life

The functional life of this agreement shall run from the date of signing through September 30, 1980. At that time, the agreement will be open to amendment.

Acceptance of Responsibility

Within _____ County, the _____ Conservation District will be the designated management agency. This district will have the additional responsibility of disbursing funds received from the Commission, and of coordinating and managing the activities of district employees within the county. The _____ Conservation District agrees to conduct its management responsibilities as described above within the framework of 208 manpower and budgetary agreements established with the designated management agency in _____ County.

The _____ Conservation District has approved the 208 Water Quality Management Plan. Upon receipt of funds to cover the needs identified in the attached budget, the Board of Supervisors will proceed to assume all responsibilities delegated to the district as management agency.

ACCEPTANCE STATEMENT

This is to certify that the _____ Conservation District will accept the responsibility for implementing the _____ County Dryland Water Quality Management Plan to the level of funding that is made available for this activity.

_____, Chairman

_____, Secretary

_____ Conservation District
By resolution of the Board of Supervisors on this ____ day of _____ 1979.

We the undersigned Conservation Districts of _____ County do accept, endorse, and will support _____ Conservation District as the Designated 208 Management Agency for _____ County.

_____, Chairman

_____ Conservation District on this ____ day of _____, 1979

_____, Chairman

_____ Conservation District on this ____ day of _____, 1979

_____, Chairman

_____ Conservation District on this ____ day of
_____, 1979

_____, Chairman

_____ Conservation District on this ____ day of
_____, 1979

_____, Chairman

_____ Conservation District on this ____ day of
_____, 1979

APPENDIX VIII

Literature Cited

1. Erosion Research in the Dryland Grain Region of the Pacific Northwest: Recent Developments and Needs. 1977. McCool, D.K., Myron Molnaw, R.I. Papendick, and F.L. Brooks, Proceedings of National Conference on Soil Erosion, West Lafayette, Indiana, May 1976.
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4. Five-year Water Quality Strategy, State of Washington Department of Ecology, September 1978.
5. Washington State Water Quality Standards, Department of Ecology, December 1977.
6. Assessment of Wastewater Treatment and Receiving Water Quality - South Fork of the Palouse River at Pullman, WA., Bernhardt, John and William Yates, Department of Ecology (DOE-PR-5), February 1979.
7. Surface Water Quality in the Palouse Dryland Grain Region, Johnson, L.C., B.L. Carlile, D.L. Johnstone, and H.H. Cheng, Washington Agriculture Experiment Station, College of Agriculture, Washington State University (Bulletin 779), August 1973.
8. Potential Rural Clean Water Project Areas, USDA Soil Conservation Service, May 1979.
9. Soil and Water Conservation Practices for Pollution Control, Walter, Michael F., Tammo S. Steenhuis and Douglas A. Haith, paper presented at 1977 winter meeting, American Society of Agricultural Engineers, Chicago, December 13-6, 1977.
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